DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-000944
Date Inspected: 28-Nov-2007

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 1300
OSM Departure Time: 2300
Location: Shanghai, China

CWI Name:	Sha Zhi, Lu Lefeng			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☐ Yes	☑ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☐ Yes	☑ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Caltrans Mock-Up

Summary of Items Observed:

Caltrans Quality Assurance (QA) Inspector, Ken Jobes, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, to randomly monitor welding and Quality Control (QC) functions. While on site, the QA Inspector observed and/or discovered the following:

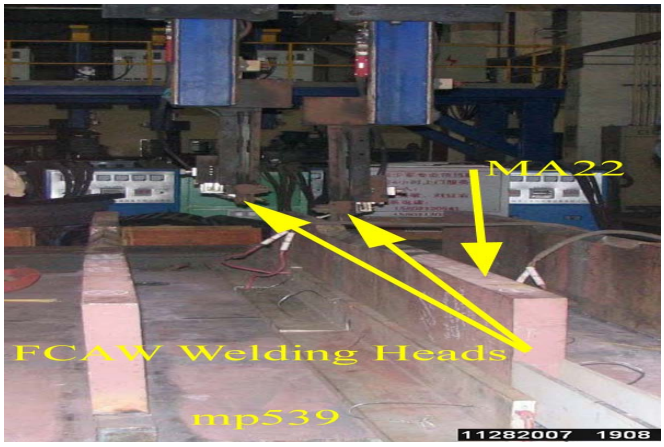
The Caltrans QA Inspector observed machine Flux Cored Arc Welding (FCAW) on Skin Plate Sub-Assembly D on the 89M Mock-Up. The Drawing No. is MUSB-MA22A/B, Rev. C. Two welds were being machine welded at the same time and were identified as MUSB-MA22-7 and MUSB-MA22-8. The two partial penetration welds are on opposite sides of stiffener mp539. They were being welded in the horizontal groove (2G) welding position by two welding operators. Piece Mark MA22 was lying flat with Piece Mark mp539 perpendicular (vertical) to it. The welding operators were Liu Xie (I.D. No. 066236) and Ma Zhiyong (I.D. No. 066019). Welding Procedure Specification (WPS) WPS-B-T-2332-TC-P5-F was being used for this weld. The Member I. D. is MUSB-MA22 – p539-1. ZPMC CWI, Sha Zhi (CWI No. 07081551) was present during welding. The QA Inspector verified that the amperage, voltage and travel speed were within the ranges of the WPS for the pass being welded. This was accomplished using a calibrated Fluke amp/volt meter for amperage and voltage; and a stop watch and tape measure for travel speed.

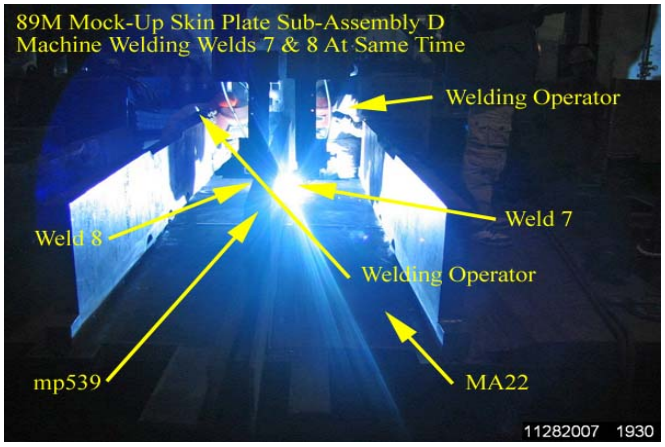
By definition, this is machine welding and the people doing the welding are welding operators (See Annex V of AWS D1.5). The WPS being used is for semi-automatic welding and does not address machine welding. Welding operators require a separate performance qualification per D1.5. Reference paragraph Nos. 5.22.3, 5.23.2. 1, 5.24.3, 5.24.3.2, and 5.24.3.3. The only FCAW performance qualifications on ZPMC's Master List of Welders/Welding Operators/Tack Welders are for welders using semi-automatic in the vertical (3G) welding

position.

The Caltrans QA Inspector also observed semiautomatic Flux Cored Arc Welding (FCAW) on Skin Plate Sub-Assembly E on the 89M Mock-Up. The Drawing No. is MUSB-MA38A/B, Rev. 0. The welding included three weld numbers. They are Weld Nos. MUSB-MA38-4, MUSB-MA38-14, and MUSB-MA38-10. Welds 4 and 14 are partial joint penetration (PJP) welds on opposite ends of stiffener mp543. Each is 500 mm long. Weld 10 is a complete joint penetration (CJP) weld, 3000 mm long between welds 4 and 14. Each weld pass contributed to all three welds. The weld was being made in the flat groove (1G) welding position. The base materials were ASTM A709 Grade 250, 100 mm and 70 mm thick. The welder was Li Shugiang (I.D. No. 053609). Two Welding Procedure Specifications (WPS) were used to make this weld. WPS-B-T-2231-TC-U5-F was used for the CJP weld and WPS-B-T-2331-TC-P5-F was used for the PJP portions. The Member I. D. is MUSB-MA38 – mp543-1. ZPMC CWI, Lu Lefeng (CWI No. 07031411) was present during welding. The QA Inspector verified that the amperage and voltage were within the ranges of the WPS's for the pass being welded. This was accomplished using a calibrated Fluke amp/volt meter.

The Caltrans QA Inspector also observed semiautomatic Flux Cored Arc Welding (FCAW) on Skin Plate Sub-Assembly A on the 89M Mock-Up. The Drawing No. is MUSB-MA21A/B, Rev. 0. The welding included three weld numbers. They are Weld Nos. MUSB-MA21-3, MUSB-MA21-15, and MUSB-MA21-10. Welds 3 and 15 are partial joint penetration (PJP) welds on opposite ends of stiffener mp504. Each is 500 mm long. Weld 10 is a complete joint penetration (CJP) weld, 2000 mm long between welds 3 and 15. Each weld pass contributed to all three welds. The weld was being made in the flat groove (1G) welding position. The base materials were ASTM A709 Grade 250, 90 mm and 75 mm thick. The welder was Lei Lichao (I.D. No. 053619). Two Welding Procedure Specifications (WPS) were used to make this weld. WPS-B-T-2231-TC-U5-F was used for the CJP weld and WPS-B-T-2331-TC-P5-F was used for the PJP portions. The Member I. D. is MUSB-MA21 – mp504-3. ZPMC CWI, Sha Zhi (CWI No. 07081551) was present during welding. The QA Inspector verified that the amperage and voltage were within the ranges of the WPS's for the pass being welded. This was accomplished using a calibrated Fluke amp/volt meter.





Summary of Conversations:

As identified within the contents of this report.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials

for your project.

Inspected By:	Jobes,Kenneth	Quality Assurance Inspector
Reviewed By:	Cochran,Jim	QA Reviewer